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Wisconsin
Department of Commerce

Program Letter

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Marine Fuel Dispensing System Located on Docks

ILHR 10.42 (2) addresses retail marine fuel storage tanks and dispensing. The rule incorporates the ILHR 10.415 vehicle fuel dispensing technical requirements and NFPA 30A-4-1.1 (1987 Edition) marine technical requirements. Individual interpretation of existing code language and advancements in system technology frequently result in confusion regarding what is compliant and how the Department addresses various system application and design issues.

> ILHR 10.42(2) MARINE SERVICE STATIONS. Marine service stations shall comply with the requirements of NFPA Standard 30A except that aboveground tanks for vehicle fueling shall comply with s. ILHR 10.415 and with this subsection.
>
> (a) Where vehicle fuel is dispensed from aboveground tanks, hoses and hose reels shall be used for dispensing and *shall be located on land*.
>
> (b) Existing marine service stations shall be brought into compliance with par. (a) within 10 years after the effective date of the rules.

A primary issue is with ILHR 10.42 (a), the requirement that hoses and hose reels from ASTs be located on shore. The language raises several arguments and conflicting interpretations:

- A question of logic that the location of hoses and hose reels on a pier from USTs is acceptable, but prohibited if from an AST.
- The assumption that a hose or hose reel is traditionally mounted on or adjacent to an AST or adjacent to a dispenser. Therefore, the AST and the dispenser are also prohibited from being located on the pier.
- The opinion by some individuals that the intent of the rule language was to prohibit fueling of land based vehicles from a hose or reel located on a pier.
- Confusion or question that a hose and nozzle assembly attached to a dispenser is in the same category as a hose and reel assembly.
- Opinions that requiring hoses to be mounted on shore, in place of pier mounted piping, presents a greater risk in terms of damage from surrounding influences (weather, abuse, stress, exposure, vandalism, etc.).
- A hose is more subject to experience thermal exposure, which will result in expansion or contraction conditions, impacting the physical condition and operation of the hose, couplings, valves, and metering.

The attempt to clarify the intent behind the existing language with historical documentation or recall from rule promulgation discussions has been unsuccessful. What is evident is that discussion and concepts emphasized during the promulgation of ILHR 10 was automotive fueling. Likewise, this was also the case during the writing of NFPA 30A prior to the 1996 Edition. During the period that ILHR 10 was being developed, components such as double-wall tanks, flexible piping, and flex connectors for aboveground use did not exist. Because of the latest NFPA 30A revision, new technology compatible with marine fueling, and the recognition that existing rule language may not provide realistic modern day alternatives, the Department has developed this clarification and interim policy.

This program letter will establish Department policy relating to marine craft fueling. This program letter will recognize that the term pier and dock may be used interchangeably. Existing ILHR 10 language which is specific in application and definition or interpretation will be used as a basis for the interim policy. *The 1996 Edition of NFPA 30A will be used as the primary supporting standard because while being consistent with the 1987 Edition, it clarifies or expands the regulatory concepts of the 1987 Edition*. A performance based concept will be used when specific requirements are not available.

The terminology used in ILHR 10.42 does not prohibit storage tanks or dispensers from being located on a pier. This maintains consistency with NFPA 30A-2-1.6, 1987 Edition, and Chapter 10 Marine Service Stations in the 1996 Edition. The Department will maintain conformity with the NFPA standard.

30A-10-2.1.2 Tanks supplying marine service stations and pumps not integral with the dispensing device shall be on shore or *on a pier of the solid-fill type*, except:

- Where shore location would require excessively long supply lines to dispensers, the AHJ may authorize the installation of tanks on piers provided that the tank does not exceed 1,100 gallons, and is code complying in other aspects of ILHR 10, *and*
- Where the tank is of double-wall design. (The Department believes that a single-wall tank in a dike located on a pier is not practical. Weather, surrounding activity, load bearing capability, and disposal of rainwater have a potential for continual management and regulatory issues.)

10-4.3 Dispensing devices at marine service stations shall be permitted to be located on open piers, or on shore or on piers of the solid-fill type . . .

ILHR 10 allows hose reels on piers which are in conjunction with fuel dispensing systems from underground storage tanks.

NFPA 30A-10-4.1 states that dispensing hoses at marine service stations exceeding 18 ft. in length shall be secured to protect from damage. The Department will reference the National Institute of Standards and Technology Handbook 44 in limiting the hose length to 50 ft. The purpose of the restriction is to assure accuracy of the dispenser totalizer and to minimize the effects of thermal expansion on liquid remaining in the hose. The commentary text (30A-4-2.6) in the NFPA Flammable and Combustible Liquids Code Handbook also references this standard.

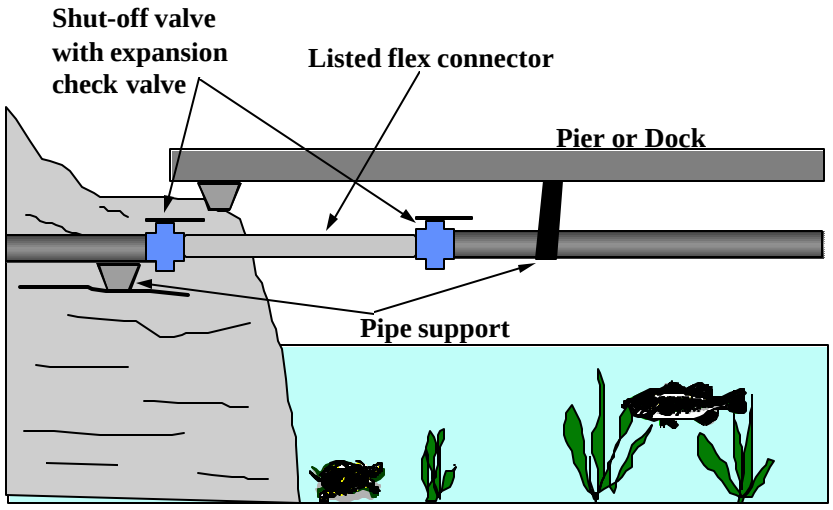
NFPA 30A Chapter 10.3 addresses the performance criteria for piping connecting the tank to the dispenser. The Department will maintain the requirement that a Listed flex connector be utilized at the point where the pier meets the shore.

Wisconsin waterfronts have three common types of docks or piers:

- Solid-fill type pier is a permanent structure designed to withstand the forces of water and weather. The primary structure is a foundation and shell constructed of concrete or steel and filled with concrete, rock or gravel.
- Open piers which float. A floating pier is supported by some type of floating pontoon, vessel or structure. A floating type dock will move within some restrictions to the movement of water or tide. Floating type docks are normally erected seasonally but all-season floating docks do exist.
- Open piers supported by pylons. Pylon supported piers are designed by driving vertical supports into the lake bed and mounting the deck of the pier to the pylons. A pylon supported dock may be designed to be erected seasonally or permanently. Depending upon the configuration and design, a pylon supported dock may experience limited movement from the forces of water or tide.

Requirements for piping from tanks on the shore to pier mounted dispensers.
The piping on the shore must comply with the respective regulations for underground or aboveground piping. The piping must be able to withstand the forces and pressures exerted upon it at the shore and along the pier. At the point where the shore piping meets the pier piping a Listed flex connector must be used. The flex connector must be listed for aboveground use and capable of tolerating the flex from movement of the dock. *An accessible shut-off valve with an expansion relief valve must be placed on each side of the flex connector*. A floating dock may require a flex connector with more tolerance to angular distortion (cyclic tolerance) than a flex connector used on an open pier supported by pylons. Floating piers may also require additional flex connectors strategically installed along the piping run to compensate for horizontal and vertical movement of the pier. Piping to pier mounted dispensers will also be required to have impact or shear valves properly anchored and connected, flex connectors, electrical isolation, and solenoid valves. Refer to diagrams.

Piping - Shore to Pier Connection



The following types of piping are acceptable for use along the pier:
- Steel piping coated to inhibit corrosion (ILHR 10.415).
- Flexible piping Listed for marine use aboveground.
- Fiberglass piping placed in approved conduit.

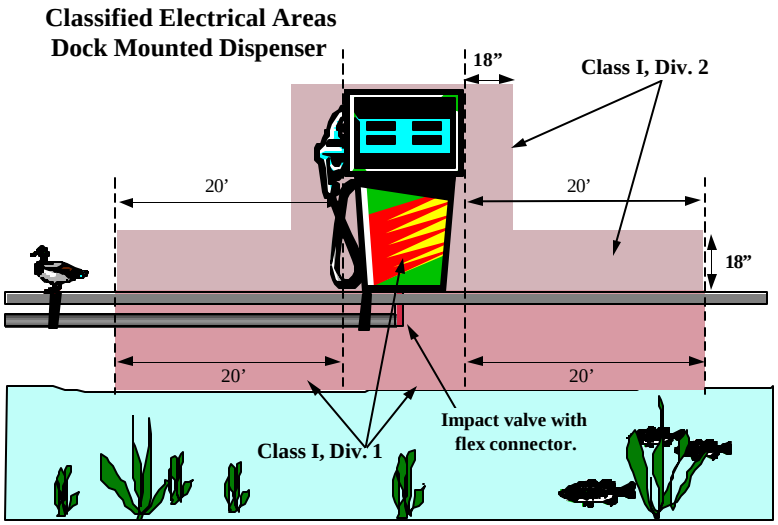
Piping placed in conduit must have stand-offs to provide support and maintain separation from the conduit wall.

Piping and dispensers that are located on the pier seasonally.
Due to winter conditions many piers are disassembled prior to freeze-up and reassembled in the spring. While not a general practice that the Department encourages, it is believed that technology and a procedure exists to safely disassemble and assemble the piping seasonally. The practice will be allowed under the following conditions:
- New system must have this procedure included in the scope of work.
- Existing systems must have a Petition For Variance along with schematic reflecting the specific components and location.
- The initial installation must be conducted by an ILHR 10 Certified Installer.
- All connections that are to be broken must be of the dry-disconnect type Listed for petroleum service.
- Broken connections must be plugged during storage.

- Documentation for new system installation or existing system Petition For Variance must include the procedure for safely draining the piping prior to disassembling.

Electrical Classification

Similar electrical classification issues apply to dispensers on a dock as they do with land based dispensers. However, the zone below the dispenser poses significantly more risk because it is open and presents exposure of drifting flammable vapors to sources of ignition.



The electrical system must also provide grounding for protection against electrical malfunctions or static electricity. Installation by a qualified electrician following the Wisconsin Electrical Code is required.

General Marina fuel dispensing requirements:

- Dispensing nozzles used at marine service stations shall be of the automatic-closing type *without* latch-open devices. Large volume fuel transfer that may warrant latch-open nozzles may only be used if prior authorization was granted by a Petition For Variance.
- Emergency controls in the form of a clearly identifiable and easily accessible switch or circuit breaker shall be located remote from the dispenser but not more than 100’ from the dispenser.
- Marina service stations shall have an attendant or supervisor on duty whenever the station is open for business (30A-10-4.7, 1996 Edition). The dispenser attendant must be within 15 ft. of the dispenser control at all times when fuel is being dispensed (30A-10-11.1, 1996 Edition).
- All signage, labeling, and lighting requirements which apply to retail fuel dispensing must be complied with.
- All existing pier mounted ASTs must be upgraded to meet the requirements set forth in this Program Letter.

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